APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,359	03/09/2004	Stephen Boyer	909A.0156.U1(US)	4348

29683	7590	10/12/2006

HARRINGTON & SMITH, LLP
4 RESEARCH DRIVE
SHELTON, CT 06484-6212

EXAMINER
SKOWRONEK, KARLHEINZ R

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/797,359	BOYER ET AL.
	Examiner	Art Unit	
	Karlheinz R. Skowronek	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 June 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-46</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-46</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

　　　　application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03-09-2004</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 07 June 2004 was filed after the mailing date of the application on 09 March 2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Objections to the Specification

The use of the following trademarks has been noted in this application: Valium (pp. 8 & 10), JuruXML (pp. 11&16), and DB2 (p.11). They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "...text recognize chemical..." in claim 43 is unclear. It seems that a word may be missing. Should the phrase which is "...text recognize chemical..." be "...text **to** recognize chemical...", "... text **that may** recognize chemical...", or some other phrase? Claims 44-46 are also rejected because they depend from claim 43, and thus contain the above issues due to said dependence.

Claims 1, 19, and 37are indefinite due to the lack of clarity of the claim language failing to recite a final process step, which agrees back with the preamble. The preamble states that it is "a method to process a document" (cl. 1), "a system to process a document" (cl. 19), and "a program product to process a document" (cl. 37), however the claim recites a final step of "Storing information in a searchable index". There is no indication that a component in a biological sample is to be identified as resuscitated in the preamble. While minor details are not required in method/process claims, at least the basic step must be recited in a positive, active fashion. The claim does not set forth the conditions/state when the system identifies the component. Clarification of the metes and bounds of the claim is requested via clearer claim wording. Claims 2-18 are also rejected because they depend from claim 1, and thus contain the above issues due to said dependence. Claims 20-36 are also rejected because they depend from claim 19, and thus contain the above issues due to said dependence. Claims 38-42 also rejected because they depend from claim 37, and thus contain the above issues due to said dependence.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 9-15,17, 19-22, 25, 27-33, and 35, are rejected under 35

U.S.C. 102(b) as being anticipated by Garfield (An Algorithm for translating chemical

names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library

of Congress Catalog Card Number 61-17455, Institute for Scientific Information),

republished in essays of an information scientist, Vol. 7, p. 441-513, 1984, Institute for

Scientific information).

Claim 1 is directed to a method of processing a document, comprising:

partitioning document text and assigning semantic meaning to words, where assigning

comprises applying a plurality of regular expressions, rules and a plurality of dictionaries

to recognize chemical name fragments; recognizing any substructures present in the

chemical name fragments; and determining structural connectivity information of the

chemical name fragments and recognized substructures and storing the determined

structural connectivity information in a searchable index. Similarly, claim 19 is drawn to

a system and claim 37 is drawn to a computer program product automating the method

of claim 1 and its dependents.

Garfield teaches a method (cl. 1), a program (cl. 37) (p.467, para. 1, "computer

coding") and system (cl. 19)(p. 467, para 1-2, "Univac") of processing documents,

comprising: partitioning document text and assigning semantic meaning to words (p.

454, Objectives of linguistic analysis, sent. 4 and p. 490, 3rd para., sent. 1), where

assigning comprises applying a plurality of regular expressions (p. 469, 2nd-3rd para.),

rules and a plurality of dictionaries (p. 470–472, tables 1-3; p. 478, 6th para.) to

recognize chemical name fragments; recognizing any substructures present in the

chemical name fragments (p. 490, 1st para., sent. 1); and determining structural

connectivity information of the chemical name fragments and recognized substructures

(p. 479, table V) and storing the determined structural connectivity information in a

searchable index (p. 453, 4th para., sent. 1-2).

Regarding claims 2-4, 20-22 and 38-40, Garfield teaches the searching the index

by fragment or substructure name and/or connectivity (p. 466, Relationship Between

Nomenclature and Searching).

Regarding claims 7, 9,12, 25,27, and 30, Garfield teaches dictionary used to

lookup fragments and substructures, with chemical prefixes and suffixes and common

chemical word endings (Table II, p. 471).

Regarding claims 10-11 and 28-29, Garfield teaches a dictionary of stop words

(p. 487, 2nd para, 2nd to last sentence).

Regarding claims 13-15 and 31-33, Garfield teaches the application of regular

expressions comprised of a plurality of patterns (further comprised of characters

numbers and punctuation; cl.14 (p. 487, 2nd para., sent. 5)) in which punctuation

characters are maintained or removed (cl.13) (Dictionary match routine, p.486) and

where punctuation can be at least one of parenthesis, square bracket, hyphen, colon

and semicolon (cl. 15) (p. 487, 2nd para., sent. 5, "paren" and next sentence, "hyphen").

Regarding claims 17 and 35, Garfield teaches characters comprising the string y/

(p. 487, 2nd para., sent. 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 18 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral

Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-

17455, Institute for Scientific Information), republished in essays of an information

scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information), as applied to

claims 1-4, 7, 9-15,17, 19-22, 25, 27-33, and 35 above, and further in view of Kemp et

al. (J. Chem. Inf. Comput. Sci., Vol. 38, p. 544-551, 1998)

Claims 18 and 36 are drawn to tokenizing a document to produce a series of

tokens.

Garfield does not teach tokenizing a document to produce a series of tokens.

Kemp et al. teach the tokenization of documents into a sequence of tokens (p. 547, 2nd para, sent. 2).

It would have been obvious to one of ordinary skill in the art to combine the method of Garfield with the tokenization of Kemp et al. because tokenization is a common method in the art to prepare data for automated analysis.

One would have been motivated to do so by Garfield because the method provides greater precision in chemical classification (p. 502, 2nd par., sent 2).

One would have had a reasonable expectation of success because Kemp et al. teach regarding text processing procedures that even simple methods can achieve very high degree of success (Kemp et al., abstract).

Claims 5, 16, 23, 34, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield as applied to claims 1-4, 7, 9-15,17, 19-22, 25, 27-33, and 35 above, and further in view of Dittmar et al. (J. Chem. Inf. Comput. Sci., Vol23, No. 3, 93-102,1983).

Claims 5 and 23 are drawn to searching an index by at least one of a fragment or substructure connectivity using a graphical user interface.

Claims 16 and 34 are drawn characters comprising at least one of upper case C, O, R, N, H.

Garfield doe not teach searching an index by at least one of a fragment or substructure connectivity using a graphical user interface or characters comprising at least one of upper case C, O, R, N, H.

Dittmar et al. teach searching an index by at least one of a fragment or substructure connectivity (p.99, col. 2, para2, sent. 1) using a graphical user interface (p. 93, col. 1, para. 3, sent. 2).

Dittmar et al. teach or characters comprising at least one of upper case C, O, R, N, H (p. 98, col. 1 par 2, sent. 3; para.3, sent. 1; and p. 99, para 2-3).

It would have been obvious to combine the teaching Garfield with the teach Dittmar et al. because Dittmar et al. teach implementation of a user interface to simplify searching (p. 93, col. 1, para 3, sent. 1).

One would have been motivated to do so because Dittmar et al. teach the simplification and improvement of query framing and search procedures through the use of structure diagrams (p. 93, col. 1, para 3, sent. 1).

One would have had a reasonable expectation of success because Dittmar et al. describe the successful use of a graphical user interface.

Claims 6, 24, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield as applied to claims 1-4, 7, 9-15,17, 19-22, 25, 27-33, and 35 above, and further in view of Leiter et al. (J. Chem. Doc., Vol.5, N. 4, p. 238-242, 1965).

Claims 6, 24, and 42 are directed to structural information stored in a searchable index, text information stored in a searchable index and searching both the structure and text indices to identify a document related to a chemical compound.

Garfield teaches the storage of structural information in a searchable index, but does not teach the storage of text information or the search of indices.

Leiter et al. teach the storage of structural information and text information in searchable indices (Fig 2). Leiter et al. teach the searching the indices to identify documents related to a chemical compound (p. 238, col. 2, lines 5-7).

It would have been obvious to combine the teachings of Garfield and Leiter et al. because the combination of the two references provides the functionality of using the indices to find documents of interest quickly and efficiently.

One would have been motivated to do so by Garfield because the method provides greater precision in chemical classification (p. 502, 2nd par., sent 2).

One would have had a reasonable expectation of success because at the time the invention was made the use of electronic chemical registries was common in the art.

Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield as applied to claims 1-4, 7, 9-15,17, 19-22, 25, 27-33, and 35 above, and further in view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895,1993).

Claims 8 and 26 are directed to a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Garfield does not teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary (abstract, sent. 3).

It would have been obvious to combine the teachings of Garfield and Drefahl et al. because SMILES notation provides a compact and computationally amenable way to encode chemical structure information.

One would have been motivated to do so by Garfield because the method provides greater precision in chemical classification (p. 502, 2nd par., sent 2).

One would have had a reasonable expectation of success because Drefahl et al. describe the successful application of a SMILES dictionary structure-based retrieval and searching.

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-17455, Institute for Scientific Information), republished in essays of an information scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information), and Shivaratri et al. (Computer, p. 33-44, December 1992).

Claim 43 is directed to a system of computers coupled through a data communications network comprising a unit to parse document text; a unit to recognize substructures in chemical name fragments; a unit to identify structural connectivity in fragments and substructures and store the structural connectivity information in a searchable index.

Garfield teaches a method of parsing text to recognize chemical name fragments and any substructures in the chemical name fragments (p. 490, 1st para., sent. 1).

Garfield teaches determination of structural connectivity information of the chemical

name and substructures (p. 453, 4th para., sent. 1-2).

Garfield does not teach a system of computers coupled through a data

communications network.

Shivaratri et al teach a system of computers coupled through a data

communication network (p. 33, para 4, sent. 1) to generate a distributed computing

system.

It would have been obvious to combine the teachings of Garfield with the

teachings of Shivaratri et al. because distributing computational loads improves

performance of computational tasks.

One would have been motivated by Shivaratri et al. who describe the advantages

of distributed computing systems as offering high performance, availability, and

extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et

al describe the successful implementation of distributed computing systems.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garfield

(An Algorithm for translating chemical names to molecular formulas, Doctoral

Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-

17455, Institute for Scientific Information), republished in essays of an information

scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information), and Shivaratri et

al. (Computer, p. 33-44,December 1992) as applied to claim 43 above, and further in

view of Leiter et al. (J. Chem. Doc., Vol.5, N. 4, p. 238-242, 1965).

Claim 44 is directed to structural information stored in a searchable index, text

information stored in a searchable index and searching both the structure and text

indices to identify a document related to a chemical compound.

Leiter et al. teach the storage of structural information and text information in

searchable indices (Fig 2). Leiter et al. teach the searching the indices to identify

documents related to a chemical compound (p. 238, col. 2, lines 5-7).

It would have been obvious to combine the teachings of Garfield, Shivaratri et al.,

and Leiter et al. because the combination of the three references provides the

functionality of using the indices to find documents of interest quickly and efficiently.

One would have been motivated by Shivaratri et al. who describe the advantages

of distributed computing systems as offering high performance, availability, and

extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et

al describe the successful implementation of distributed computing systems.

Claim 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Garfield (An Algorithm for translating chemical names to molecular formulas, Doctoral

Dissertation, (originally published 1961, Library of Congress Catalog Card Number 61-

17455, Institute for Scientific Information), republished in essays of an information

scientist, Vol. 7, p. 441-513, 1984, Institute for Scientific information), and Shivaratri et

al. (Computer, p. 33-44,December 1992) as applied to claim 43 above, and further in

view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895,1993).

Claim 45 is directed to a structure dictionary that is used to determine structural

connectivity information.

Claim 46 is directed to a structure dictionary comprising at least one of a MOL

dictionary and a SMILES dictionary.

Garfield teaches a structure dictionary that is used to determine structural

connectivity information (Table II, p. 471).

Garfield does not teach a structure dictionary comprising at least one of a MOL

dictionary and a SMILES dictionary.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL

dictionary and a SMILES dictionary (abstract, sent. 3).

It would have been obvious to combine the teachings of Garfield and Drefahl et

al. because SMILES notation provides a compact and computationally amenable way to

encode chemical structure information.

One would have been motivated by Shivaratri et al. who describe the advantages

of distributed computing systems as offering high performance, availability, and

extensibility at low cost (p. 33, para. 1, sent.2).

One would have had a reasonable expectation of success because Shivaratri et

al describe the successful implementation of distributed computing systems.

No claim is allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karlheinz R. Skowronek whose telephone number is (571) 272-9047. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karlheinz R. Skowronek/

JOHN S. BRUSCA, PH.D
PRIMARY EXAMINER